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Agency

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National Priority Chemicals Trends Report (2000-2004)

Section 4

Chemical Specific Trends Analyses for Priority Chemicals (2000–2004): Mercury and Mercury Compounds (Mercury)

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Mercury and Mercury Compounds (Mercury)

Chemical Information:

Mercury (CAS 7439–97–6) is a heavy, silver–white metal that exists as a liquid at ambient temperatures.

CAS Number – 7439–97–6

General Uses – Mercury is a precious metal used in chlor–alkali production, wiring devices, switching mechanisms, amalgam dental fillings, and measurement and control instruments. Industries also manufacture and process mercury reagents, catalysts, and medicinal chemicals. Metal ores, coal, crude oil, and fuel oils contain mercury as a trace constituent. Mercury is produced as a byproduct of gold ore mining operations. Secondary production of mercury involves the recovery of mercury from dismantled equipment and recovery from scrap and industrial wastes using a thermal or chemical extractive process. Major sources of recycled or recovered mercury include scrap from instrument and electrical manufactures (lamps and switches), wastes and sludge from laboratories and electrolytic refining plants, mercury batteries, and dental amalgams. Mercury is also found as a trace contaminant in fossil fuels and waste materials. The combination of the elevated temperature of the process and the volatility of mercury results in their being emitted in the combustion gas exhaust stream.

Potential Hazards – The nervous system is sensitive to all forms of mercury. Methyl mercury and metallic mercury vapors are more harmful than other forms. Exposure to high levels of metallic, inorganic, or organic mercury can permanently damage the brain, kidneys, and developing fetus.

Summary Analysis:

- **NATIONAL:** The national quantity of mercury decreased approximately 41 percent compared to the national quantity reported in 2000. However, in 2004, there was a 41 percent increase in quantities compared to the quantities reported in 2003.
- **REGIONAL:** In 2004, facilities in Regions 4 and 9 reported approximately 53 percent of mercury. Facilities in four Regions (4, 5, 6, and 9) reported 84 percent of the total quantity.
- **STATE:** Facilities in almost every state and territory reported mercury in 2004. Facilities in 11 states reported approximately 80 percent of the total quantity; facilities in California reported the largest quantity (approximately 13,800 pounds) of mercury in 2004, accounting for approximately 27 percent of the total quantity.
- **FACILITIES:** In 2004, 586 facilities reported approximately 51,700 pounds of mercury. Of these, 10 facilities accounted for approximately 63 percent of the total quantity of this chemical. Fifty–five facilities accounted for almost 87 percent of the total quantity.
- **MANAGEMENT:** In 2004, 100 percent of the mercury was land disposed. From 2000 to 2002, approximately 450,000 pounds of mercury were consistently recycled each year, significantly increased in 2003, and then increased dramatically by approximately 24 percent in 2004, when approximately 608,000 pounds were recycled.
- **INDUSTRY SECTOR:** Facilities in approximately 100 industry sectors reported mercury in 2004; facilities in seven of the sectors accounted for approximately 80 percent of the total quantity. Fifty–two percent of the total quantity was reported by facilities in SIC 9711 (National security) and SIC 3312 (Blast furnaces and steel mills).
- **PROGRAMS:** The Office of Solid Waste has a number of ongoing projects such as “The Mercury Challenge” and “The Mercury in Schools Project” to reduce mercury.

National Trends:

In 2004, 586 facilities reported approximately 51,700 pounds of mercury. Exhibit 4.148 shows the number of facilities that reported mercury in 2000 to 2004 and the quantities that were managed via disposal, treatment, energy recovery, and recycling. From 2000 to 2004 the number of facilities reporting this chemical increased by 24 percent. However, the quantity of mercury decreased approximately 41 percent compared to the quantity reported in 2000. Interestingly, in 2004, there was a 41 percent increase in quantity compared to the quantity reported in 2003.

In 2004, 100 percent of the mercury was land disposed. This is indicative of the fact that metals, including mercury, are not amenable to destruction via treatment and have no energy value. Although treatment and energy recovery quantities were reported for mercury in previous years, these quantities are steadily decreasing – likely due to improved data quality assurance by the Toxics Release Inventory (TRI) program and increased awareness by reporting facilities that land disposal is the most suitable method to be reported for this chemical. From 2000 to 2002, approximately 450,000 pounds of mercury were consistently recycled each year, significantly increased in 2003, and then increased dramatically by approximately 24 percent in 2004 when approximately 608,000 pounds were recycled.

Exhibit 4.148. National Management Methods for Mercury and Mercury Compounds, 2000–2004

| Management Methods for Mercury Number of Facilities | 2000 | 2001 | 2002 | 2003 | 2004 | Percent Change (2000–2004) | Management Method -- Percent of Quantity of This PC (2004) |
|---|---------|---------|---------|---------|---------|----------------------------------|---|
| Number of Facilities | 475 | 502 | 518 | 546 | 586 | 24.0% | - |
| Disposal Quantity (pounds) | 83,619 | 90,930 | 92,028 | 36,728 | 51,697 | -38.2% | 100.0% |
| Energy Recovery Quantity (pounds) | 55 | 2 | 0 | 0 | 0 | -100.0% | 0.0% |
| Treatment Quantity (pounds) | 3,446 | 36,594 | 1,860 | 4 | 0 | -100.0% | 0.0% |
| Priority Chemical Quantity (pounds) | 87,120 | 127,526 | 93,888 | 36,732 | 51,697 | -40.7% | - |
| Recycling Quantity (pounds)* | 450,262 | 442,890 | 456,063 | 491,314 | 607,957 | 35.0% | - |
| <p>*Note: Waste minimization is the emphasis of this Report. As such, we primarily focus on quantities of PCs that are managed via onsite/offsite disposal, treatment, or energy recovery because we believe these PC quantities offer the greatest opportunities for waste minimization. Because recycled quantities of PCs are already directed to their best uses, they are considered separate and distinct from the quantities of PCs not recycled. Throughout this section, the recycled quantity is presented to provide some perspective regarding the quantity of this PC already recycled compared to the quantities that are managed via disposal, treatment, and energy recovery and thus potentially available for waste minimization.</p> | | | | | | | |

Exhibit 4.149 shows the number of facilities that reported mercury, within ranges of quantities. Of the 586 facilities that reported mercury in 2004, 10 facilities accounted for approximately 63 percent of the total quantity of this chemical. Fifty-five facilities accounted for almost 87 percent of the total quantity.

Exhibit 4.149. Distribution of Quantities by Facilities Reporting Mercury and Mercury Compounds, 2004

| Mercury (51,697 pounds) | | |
|--------------------------------|--|--|
| Quantity Reported | Number of Facilities Reporting This Quantity (2004) | Percent of Total Quantity of This PC (2004) |
| up to 10 pounds | 347 | 1.8% |
| 11 – 100 pounds | 184 | 11.4% |
| 101 – 1,000 pounds | 45 | 24.2% |
| 1,001 – 10,000 pounds | 9 | 38.6% |
| 10,001 – 100,000 pounds | 1 | 24.0% |
| 100,001 – 1 million pounds | 0 | 0.0% |
| > 1 million pounds | 0 | 0.0% |

EPA Regional Trends:

Exhibits 4.150 and 4.151 show the quantity of mercury reported by facilities in each EPA region in 2000 to 2004. In 2004, facilities in Regions 4 and 9 reported approximately 53 percent of mercury. Facilities in four Regions (4, 5, 6, and 9) reported 84 percent of the total quantity.

Some additional observations concerning increases and decreases include:

- Compared to quantities reported in 2000, facilities in four EPA regions reported an increase of approximately 35,000 pounds in 2004. Approximately 67 percent of this increase, or approximately 12,800 pounds, was reported by facilities in Region 9. A federal facility in California accounted for most of this increase as well as the large increase reported by Region 9 facilities in 2001.
- Compared to quantities reported in 2000, facilities in six of the 10 EPA regions reported a decreased quantity in 2004. Facilities in Regions 3, 6, and 7 reported decreases of at least 1 million pounds and facilities in Region 2 reported a decrease of approximately 2.4 million pounds. Of the overall 35,000 pound decrease from 2000 to 2004, most of the decrease was due to a pulp mill in Washington that reported approximately 23,500 pounds in 2000 but then did not report mercury since then.
- Compared to quantities reported in 2003, facilities in EPA Regions 4 and 9 accounted for most of the increase reported in 2004; a federal facility in each of these regions accounted for most of the increase.
- Compared to 2003 quantities, facilities in Region 3 reported a decrease of approximately 4,000 pounds.

Exhibit 4.150. Regional Quantities of Mercury and Mercury Compounds, 2000–2004

| EPA Region | 2000 (pounds) | 2001 (pounds) | 2002 (pounds) | 2003 (pounds) | 2004 (pounds) | Percent Change in Quantity (2000–2004) | Percent of Total Quantity of This PC (2004) |
|-------------------|----------------------|----------------------|----------------------|----------------------|----------------------|---|--|
| 1 | 4,200 | 647 | 611 | 1,877 | 532 | –87.3% | 1.0% |
| 2 | 2,192 | 1,447 | 2,253 | 1,040 | 794 | –63.8% | 1.5% |
| 3 | 2,989 | 21,280 | 6,022 | 7,423 | 3,484 | 16.6% | 6.7% |
| 4 | 15,626 | 35,690 | 49,080 | 6,874 | 13,532 | –13.4% | 26.2% |
| 5 | 16,045 | 4,875 | 5,032 | 8,027 | 9,167 | –42.9% | 17.7% |
| 6 | 18,274 | 9,461 | 20,412 | 6,150 | 6,682 | –63.4% | 12.9% |
| 7 | 903 | 719 | 1,614 | 1,053 | 1,512 | 67.6% | 2.9% |
| 8 | 370 | 322 | 551 | 664 | 588 | 58.9% | 1.1% |
| 9 | 1,326 | 51,571 | 6,962 | 2,229 | 14,081 | 961.6% | 27.2% |
| 10 | 25,193 | 1,515 | 1,351 | 1,397 | 1,325 | –94.7% | 2.6% |
| Total | 87,120 | 127,526 | 93,888 | 36,732 | 51,697 | –40.7% | 100.0% |

Exhibit 4.151. Distribution of Facilities Reporting Mercury and Mercury Compounds in 2004 and the Quantities of Mercury and Mercury Compounds Reported in 2004 per EPA Region

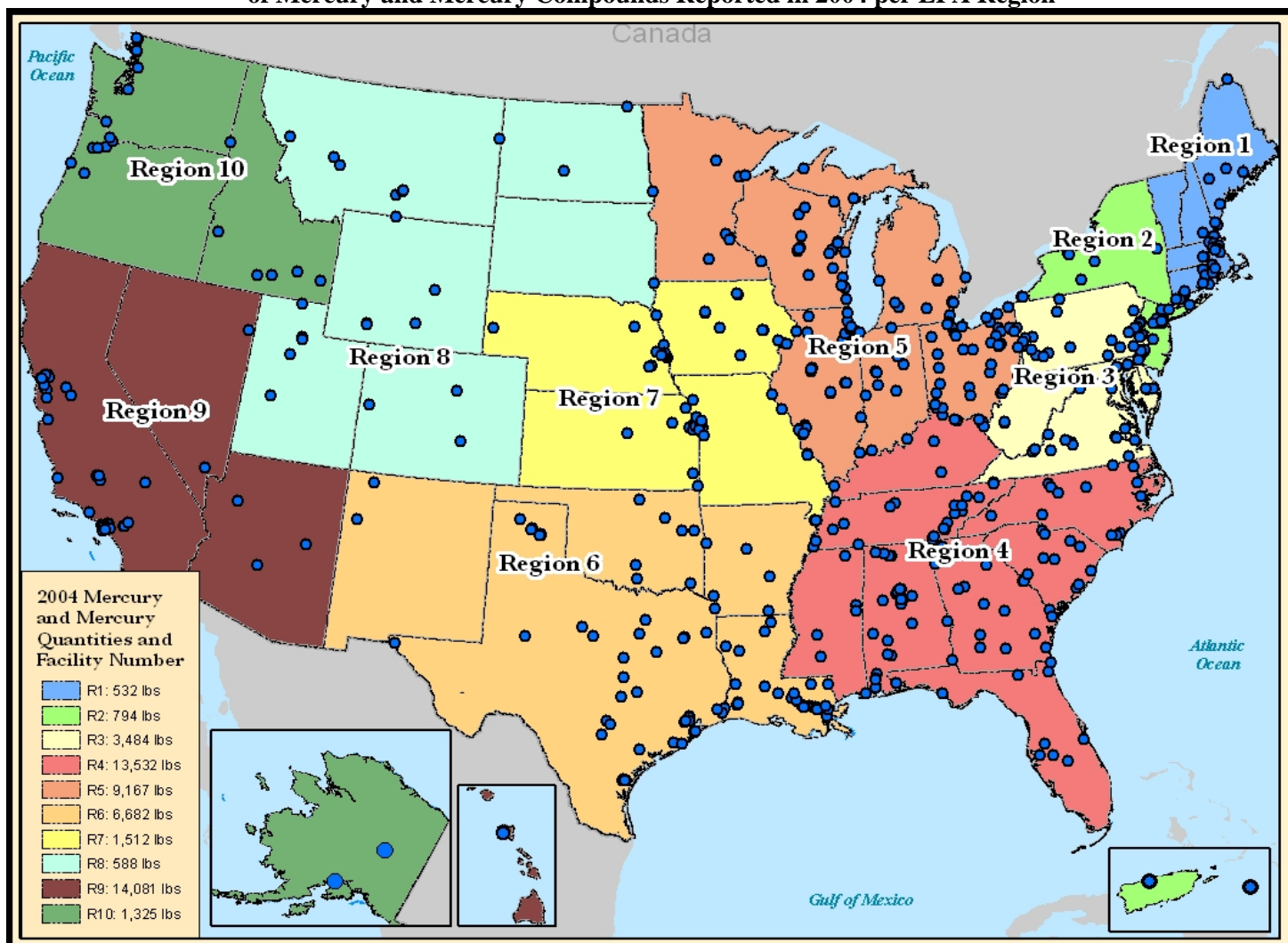


Exhibit 4.152 shows how facilities managed mercury, by EPA region, in 2004. All the mercury was land disposed. Facilities in Region 3 reported approximately 80 percent of the 608,000 pounds of mercury recycled in 2004.

Exhibit 4.152. Regional Management Methods for Mercury and Mercury Compounds, 2004

| EPA Region | Quantity (pounds) of Mercury (2004) | Percent of Total Quantity of Mercury (2004) | Disposal (pounds) | | Energy Recovery (pounds) | | Treatment (pounds) | | Recycling (pounds) | |
|--------------|-------------------------------------|---|-------------------|------------------|--------------------------|-------------------------|--------------------|-------------------|--------------------|-------------------|
| | | | Onsite Disposal | Offsite Disposal | Onsite Energy Recovery | Offsite Energy Recovery | Onsite Treatment | Offsite Treatment | Onsite Recycling | Offsite Recycling |
| 1 | 532 | 1.0% | 28 | 503 | 0 | 0 | 0 | 0 | 0 | 1,737 |
| 2 | 794 | 1.5% | 12 | 782 | 0 | 0 | 0 | 0 | 54 | 228 |
| 3 | 3,484 | 6.7% | 165 | 3,319 | 0 | 0 | 0 | 0 | 455,050 | 32,744 |
| 4 | 13,532 | 26.2% | 5,681 | 7,851 | 0 | 0 | 0 | 0 | 46,984 | 13,211 |
| 5 | 9,167 | 17.7% | 407 | 8,760 | 0 | 0 | 0 | 0 | 4,950 | 9,506 |
| 6 | 6,682 | 12.9% | 1,376 | 5,306 | 0 | 0 | 0 | 0 | 28,929 | 13,751 |
| 7 | 1,512 | 2.9% | 138 | 1,375 | 0 | 0 | 0 | 0 | 0 | 516 |
| 8 | 588 | 1.1% | 408 | 180 | 0 | 0 | 0 | 0 | 0 | 69 |
| 9 | 14,081 | 27.2% | 261 | 13,819 | 0 | 0 | 0 | 0 | 30 | 182 |
| 10 | 1,325 | 2.6% | 954 | 371 | 0 | 0 | 0 | 0 | 0 | 16 |
| Total | 51,697 | 100.0% | 9,429 | 42,267 | 0 | 0 | 0 | 0 | 535,998 | 71,959 |

State Trends:

Facilities in almost every state and territory reported mercury in 2004. Exhibit 4.153 shows the quantity of mercury, in 2000–2004, for the 11 states where facilities reported approximately 80 percent of the total quantity in 2004. Facilities in California reported the largest quantity (approximately 13,800 pounds) of mercury in 2004, accounting for approximately 27 percent of the total quantity. Facilities in California, Ohio, and Texas reported approximately 50 percent of the total quantity of this chemical in 2004.

Some additional observations concerning increases and decreases include:

- Compared to quantities reported in 2000, facilities in California reported the largest increase, approximately 12,700 pounds, in 2004. Most of this increase was reported by a federal facility that began reporting this chemical in 2001. Facilities in three other states: Florida, South Carolina, and Alabama, also reported significant increases.
- Compared to quantities reported in 2000, Region 4 facilities reported a decrease of approximately 9,200 pounds; most of this decrease was due to a facility that no longer reported this chemical in 2003 and 2004.
- Compared to 2003 quantities, facilities in California reported an increase of approximately 12,100 pounds in 2004. Most of this increase was reported by a federal facility where mercury is a by-product from a geothermal energy plant; carbon was used to extract the mercury from the geothermal stream and was land disposed. A federal facility in South Carolina reported most of this state's increase of 2,900 pounds in 2004; it disposed of 23 drums of stockpiled mercury wastes.
- Compared to 2003 quantities, facilities in Delaware reported a decrease of approximately 1,100 pounds in 2004.

Exhibit 4.153. State Quantity Trends for Mercury and Mercury Compounds in Which Facilities Reported 80 Percent of the Total Quantity, 2004

| State | Total Quantity (pounds) of Mercury | | | | | Change in Quantity (2000–2004) | Percent Change in Quantity (2000–2004) | Percent of Total Quantity of This PC (2004) |
|--------------|------------------------------------|----------------|---------------|---------------|---------------|-----------------------------------|---|--|
| | 2000 | 2001 | 2002 | 2003 | 2004 | | | |
| CA | 1,043 | 51,282 | 6,639 | 1,713 | 13,784 | 12,740 | 1221.2% | 26.7% |
| OH | 9,061 | 1,991 | 1,811 | 5,447 | 7,145 | –1,916 | –21.1% | 13.8% |
| TX | 4,237 | 6,330 | 3,087 | 4,233 | 4,950 | 713 | 16.8% | 9.6% |
| FL | 214 | 1,284 | 1,188 | 2,011 | 3,297 | 3,083 | 1442.7% | 6.4% |
| SC | 122 | 203 | 272 | 241 | 3,145 | 3,022 | 2469.9% | 6.1% |
| AL | 913 | 8,271 | 15,863 | 2,503 | 2,970 | 2,057 | 225.4% | 5.7% |
| TN | 2,854 | 1,935 | 1,962 | 1,008 | 1,700 | –1,154 | –40.4% | 3.3% |
| LA | 1,898 | 2,941 | 16,979 | 1,721 | 1,417 | –481 | –25.4% | 2.7% |
| KY | 10,574 | 22,518 | 27,938 | 88 | 1,382 | –9,192 | –86.9% | 2.7% |
| WV | 320 | 16,773 | 1,009 | 1,249 | 1,173 | 854 | 267.1% | 2.3% |
| DE | 1,327 | 1,047 | 1,277 | 2,150 | 1,086 | –241 | –18.2% | 2.1% |
| Total | 32,562 | 114,574 | 78,026 | 22,364 | 42,048 | 9,485 | 29.1% | 81.3% |

Exhibits 4.154 through 4.157 show the trends for the quantities of mercury for the five top states in which facilities reported this PC in 2004.

Exhibit 4.154. California Trends for Mercury and Mercury Compounds, 2000–2004

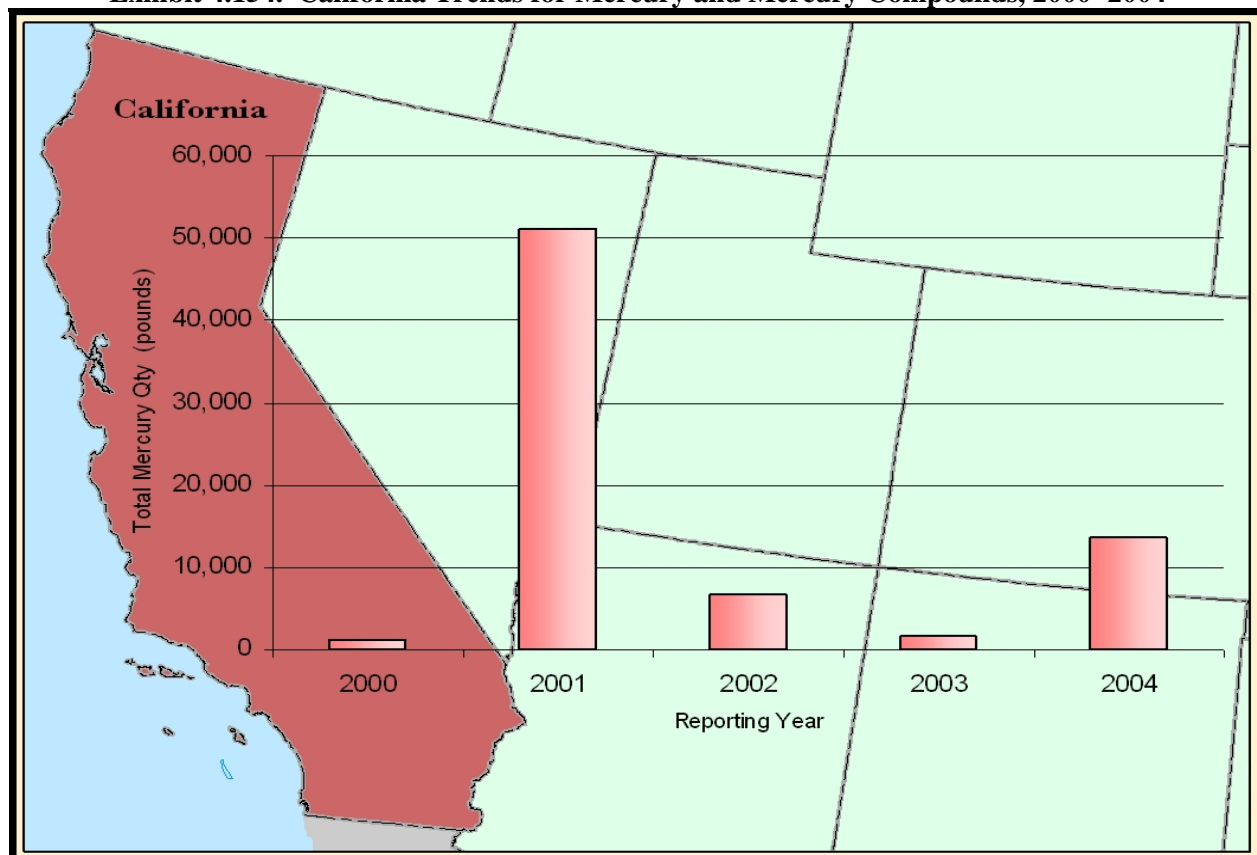


Exhibit 4.155. Ohio Trends for Mercury and Mercury Compounds, 2000–2004

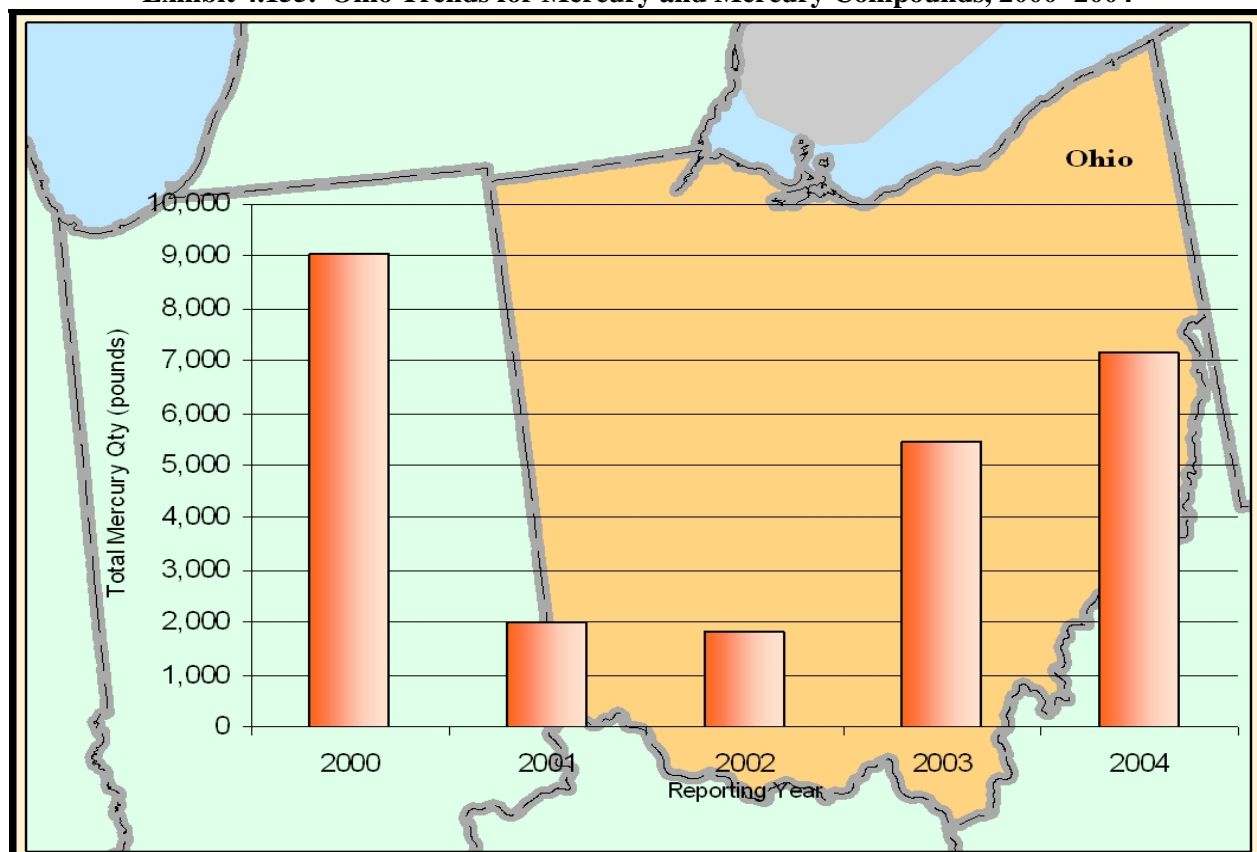


Exhibit 4.156. Texas Trends for Mercury and Mercury Compounds, 2000–2004

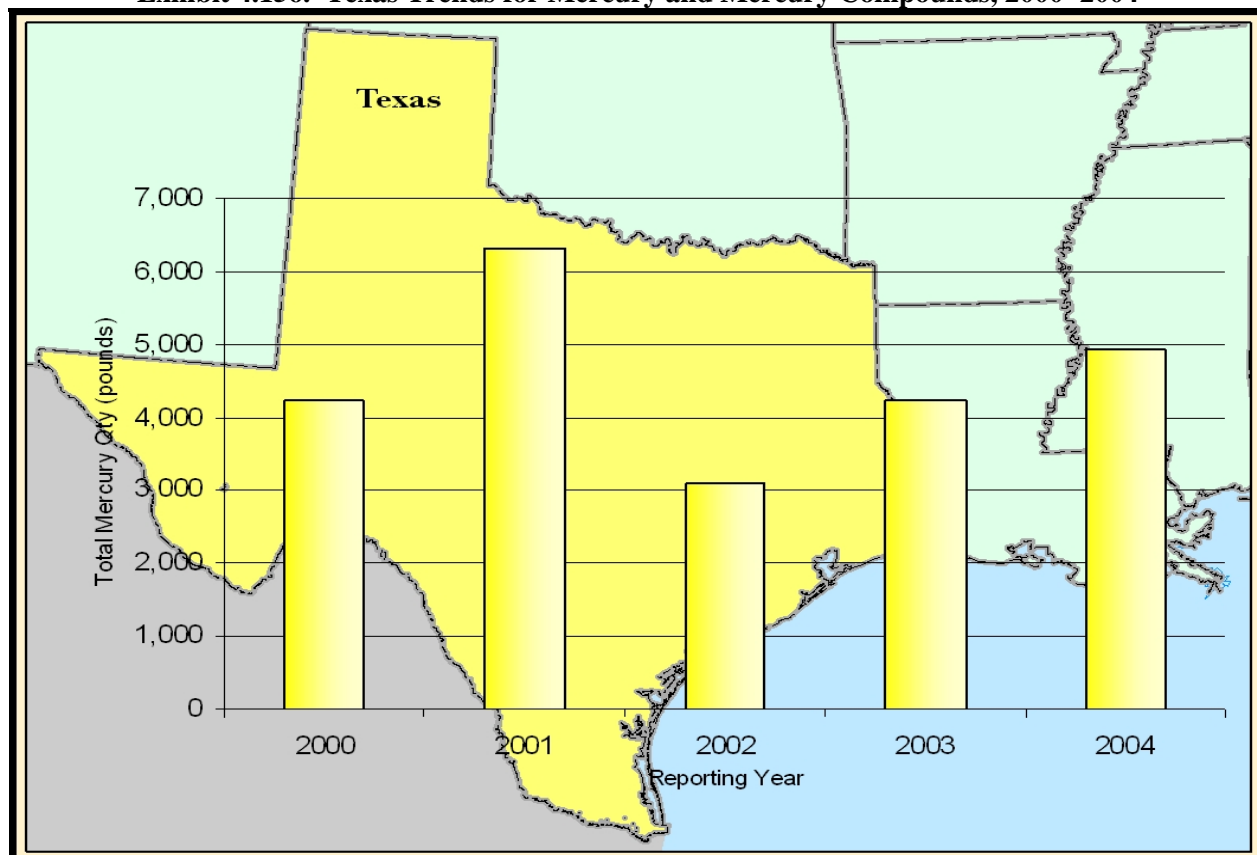


Exhibit 4.157. South Carolina and Florida Trends for Mercury and Mercury Compounds, 2000–2004

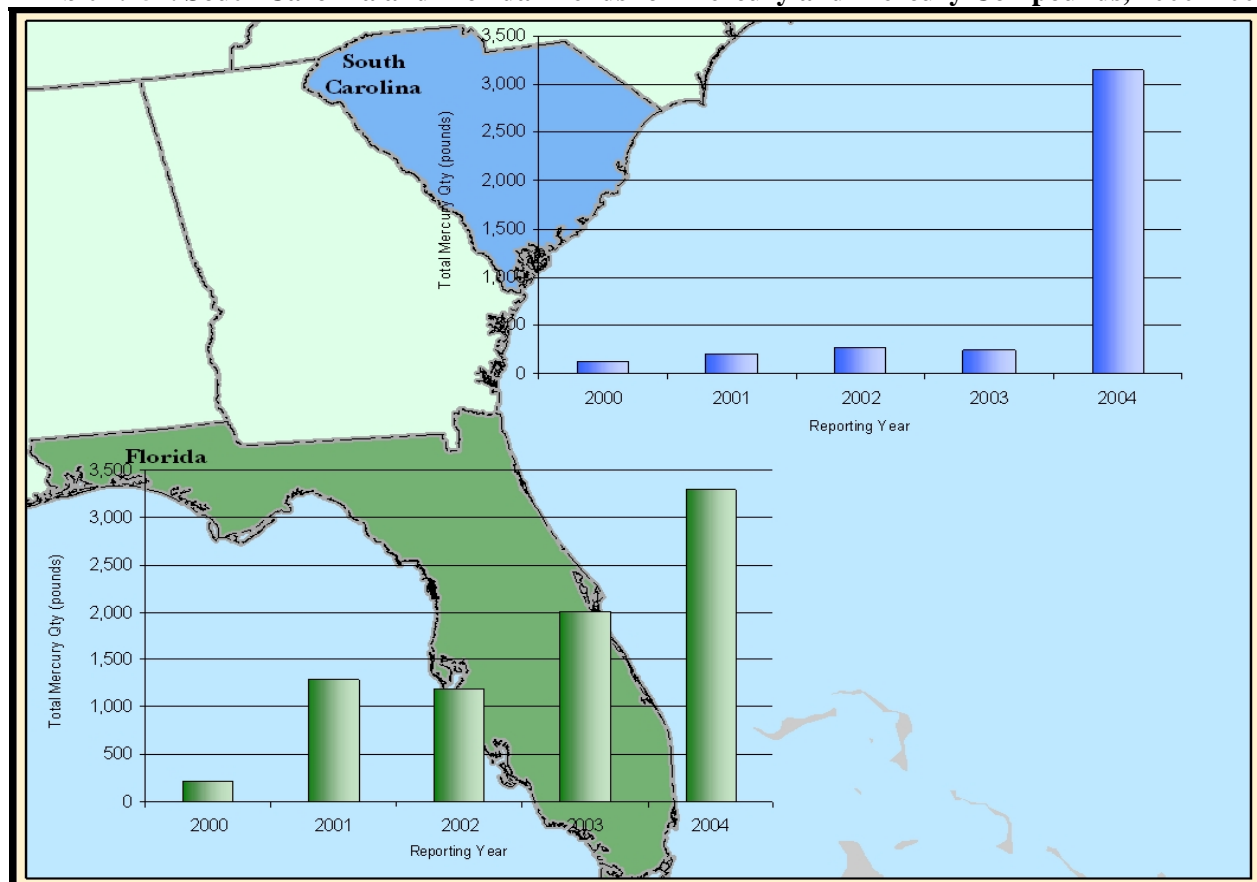


Exhibit 4.158 shows how facilities managed mercury in these 11 states. All of the mercury from facilities in these states was land disposed, mostly (85 percent) offsite. For numerous facilities in these states, the recycling quantities were considerably greater than the quantities that were land disposed. A facility in West Virginia reported approximately 50 percent of the mercury recycled in 2004.

Exhibit 4.158. Management Methods for Mercury and Mercury Compounds, Facilities in States with at Least 1 Million Pounds, 2004

| State | Quantity of Mercury (2004) | Onsite Disposal (pounds) | Offsite Disposal (pounds) | Onsite Energy Recovery (pounds) | Offsite Energy Recovery (pounds) | Onsite Treatment (pounds) | Offsite Treatment (pounds) | Onsite Recycling (pounds) | Offsite Recycling (pounds) |
|--------------|----------------------------|--------------------------|---------------------------|---------------------------------|----------------------------------|---------------------------|----------------------------|---------------------------|----------------------------|
| CA | 13,784 | 25 | 13,758 | 0 | 0 | 0 | 0 | 0 | 77 |
| OH | 7,145 | 122 | 7,024 | 0 | 0 | 0 | 0 | 39 | 5,764 |
| TX | 4,950 | 1,186 | 3,764 | 0 | 0 | 0 | 0 | 0 | 12,959 |
| FL | 3,297 | 3,273 | 24 | 0 | 0 | 0 | 0 | 0 | 2,674 |
| SC | 3,145 | 53 | 3,092 | 0 | 0 | 0 | 0 | 0 | 1,988 |
| AL | 2,970 | 202 | 2,768 | 0 | 0 | 0 | 0 | 21,740 | 526 |
| TN | 1,700 | 1,433 | 267 | 0 | 0 | 0 | 0 | 25,159 | 201 |
| LA | 1,417 | 100 | 1,317 | 0 | 0 | 0 | 0 | 28,929 | 705 |
| KY | 1,382 | 67 | 1,315 | 0 | 0 | 0 | 0 | 0 | 1,458 |
| WV | 1,173 | 10 | 1,163 | 0 | 0 | 0 | 0 | 105,510 | 0 |
| DE | 1,086 | 38 | 1,048 | 0 | 0 | 0 | 0 | 1,600 | 16 |
| Total | 42,048 | 6,508 | 35,540 | 0 | 0 | 0 | 0 | 182,977 | 26,370 |

Industry Sector (SIC) Trends:

Facilities in approximately 100 industry sectors reported mercury in 2004. Exhibit 4.159 shows the quantity of mercury reported in the seven industry sectors where facilities accounted for approximately 80 percent of mercury in 2004. Facilities in two of these industry sectors accounted for approximately 52 percent of the total quantity: SIC 9711 (National security) and SIC 3312 (Blast furnaces and steel mills).

Some additional observations concerning increases and decreases include:

- Compared to quantities reported in 2000 and in 2003, facilities in SIC 9711 reported the largest increase, approximately 16,000 pounds. Two federal facilities, one in California and the other in South Carolina, accounted for most of this increase.
- Compared to quantities reported in 2000, facilities in four of the seven industry sectors reported significant decreases. For example, facilities in SIC 3312 (Blast furnaces and steel mills) reported a 50 percent decrease and facilities in SIC 2869 (Industrial organic chemicals, nec) reported an 88 percent decrease. One source of mercury reported by facilities in SIC 3312 is “shredder fluff” that contains mercury from automobile switches and is obtained from scrap yards for use as feedstock in blast furnaces. EPA recently reached agreement with the steel and auto industries to recover these switches from vehicles before they are scrapped.
- Compared to 2003 quantities, facilities in SIC 2812 (Alkalies and chlorine) and SIC 2819 (Industrial inorganic chemicals, nec) reported decreases of approximately 30 percent.

Exhibit 4.159. Industry Sectors Containing Mercury and Mercury Compounds, Facilities Reporting 80 Percent of the Total Quantity, 2004

| Primary SIC | SIC Description | Number of Facilities That Reported Mercury (2004) | 2000 (pounds) | 2001 (pounds) | 2002 (pounds) | 2003 (pounds) | 2004 (pounds) | Change in Quantity (2000–2004) | Percent of Total Quantity of This PC (2004) |
|--------------|-------------------------------------|---|---------------|----------------|---------------|---------------|---------------|--------------------------------|---|
| 9711 | National security | 6 | 55 | 47,568 | 5,394 | 656 | 15,744 | 15,689 | 30.5% |
| 3312 | Blast furnaces and steel mills | 52 | 22,720 | 4,216 | 3,279 | 8,020 | 11,273 | –11,447 | 21.8% |
| 2812 | Alkalies and chlorine | 10 | 5,834 | 25,273 | 6,808 | 6,361 | 4,383 | –1,451 | 8.5% |
| 2819 | Industrial inorganic chemicals, nec | 15 | 2,034 | 4,657 | 5,078 | 6,036 | 4,382 | 2,347 | 8.5% |
| 2911 | Petroleum refining | 90 | 6,564 | 4,800 | 2,220 | 2,391 | 2,791 | –3,773 | 5.4% |
| 3479 | Metal coating and allied services | 1 | 0 | 6,680 | 11,560 | 1,083 | 1,780 | 1,780 | 3.4% |
| 2869 | Industrial organic chemicals, nec | 21 | 9,753 | 22,625 | 28,093 | 514 | 1,139 | –8,613 | 2.2% |
| Total | | 195 | 46,959 | 115,820 | 62,433 | 25,062 | 41,491 | –5,468 | 80.3% |

Exhibit 4.160 shows how facilities managed mercury in these seven industry sectors in 2004. These facilities land disposed all of the mercury; approximately 88 percent was disposed of offsite. Facilities in SIC 2819 (Industrial organic chemicals, nec) and SIC 2812 (alkalies and chlorine) reported most of the recycled quantity of mercury in 2004.

Exhibit 4.160. Management Methods for Mercury and Mercury Compounds in Industry Sectors (Facilities Reporting at Least 1 Million Pounds), 2004

| Primary SIC | SIC Description | Total Quantity of Mercury (2004) | Percent of Total Quantity (2004) | Onsite Disposal (pounds) | Offsite Disposal (pounds) | Onsite Energy Recovery (pounds) | Offsite Energy Recovery (pounds) | Onsite Treatment (pounds) | Offsite Treatment (pounds) | Onsite Recycling (pounds) | Offsite Recycling (pounds) |
|--------------|-------------------------------------|----------------------------------|----------------------------------|--------------------------|---------------------------|---------------------------------|----------------------------------|---------------------------|----------------------------|---------------------------|----------------------------|
| 9711 | National security | 15,744 | 30.5% | 13 | 15,730 | 0 | 0 | 0 | 0 | 0 | 576 |
| 3312 | Blast furnaces and steel mills | 11,273 | 21.8% | 78 | 11,195 | 0 | 0 | 0 | 0 | 75 | 1,537 |
| 2812 | Alkalies and chlorine | 4,383 | 8.5% | 287 | 4,096 | 0 | 0 | 0 | 0 | 187,820 | 23,216 |
| 2819 | Industrial inorganic chemicals, nec | 4,382 | 8.5% | 4,021 | 361 | 0 | 0 | 0 | 0 | 347,940 | 35,496 |
| 2911 | Petroleum refining | 2,791 | 5.4% | 728 | 2,063 | 0 | 0 | 0 | 0 | 72 | 963 |
| 3479 | Metal coating and allied services | 1,780 | 3.4% | 0 | 1,780 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2869 | Industrial organic chemicals, nec | 1,139 | 2.2% | 51 | 1,088 | 0 | 0 | 0 | 0 | 0 | 700 |
| Total | | 41,491 | 100% | 5,178 | 36,313 | 0 | 0 | 0 | 0 | 535,907 | 62,488 |

OSW Activities to Measurably Reduce Mercury

The Office of Solid Waste (OSW) has several ongoing projects to reduce mercury. Since December 31, 2005, two of these projects have resulted in a reduction of more than 40,000 pounds of Mercury in the two projects for which we track reductions of mercury:

- The Mercury Challenge
- The Mercury In Schools Project

Mercury Challenge:

Mercury is widely present in industrial facilities. To help reduce this presence, EPA is working through the National Partnership of Environmental Priorities (NPEP) to launch the Mercury Challenge. The Mercury Challenge encourages NPEP partners to replace mercury-containing equipment with mercury-free alternatives. By eliminating mercury from their facilities, partners can reduce potential worker exposure and minimize the risk and cost of mercury spills and their subsequent cleanups as well as save facilities the cost of disposing mercury-bearing wastes.

As of August 2006, 27 facilities within the NPEP program have committed to reduce 38,393 pounds of mercury by 2010. Currently, 7,391 pounds of mercury have been successfully eliminated. We are continuing to encourage other facility partners to identify ways to reduce mercury in their wastes.

Mercury in Schools:

In April 2004, EPA launched the Mercury in Schools Chemical Cleanout Campaign (SC3). This program is designed to remove mercury, as well as other excess hazardous chemicals, from secondary schools; promote safe management of chemicals; and raise national awareness of the problem. Mercury is a focus of this campaign, given the number of contamination problems encountered in the past several years.

EPA Headquarters provided seed money to the 10 EPA regions to clean out approximately 75 schools. EPA has initiated discussion among federal agencies for developing a coordinated effort to remove stockpiles of chemicals from K-12 schools and improve future chemical management practices. Once a federal lead is established, we will solidify relationships with external partners from industry, academia, and school associations, among others.

As of December 2005, schools have reported eliminating 2,930 pounds of mercury. One of the school systems participating in the SC3 mercury initiative is the Rochester City School District. The District has three programs in place that address the issue of safer schools through better chemical management. Those programs include: the training of all science teachers in hazard communication and safe chemical storage of mercury); a program in which teachers identify excess mercury that the Environmental Safety Director is responsible for safely disposing of; the improving of the lab chemical procurement practices so that only the quantities necessary are ordered including the use of lab kits); and a restriction against accepting donated chemicals.

Other OSW Efforts to Reduce Mercury:

Mercury Public Service Announcement (PSA):

OSW staff is working with the Minnesota Pollution Control Agency to develop a PSA using Clancy, the only U.S. dog trained to sniff mercury. The PSA will use Clancy as a spokes-dog to identify sources of elemental mercury in order to educate people about the dangers of mercury, and to highlight the need for proper handling and disposal of mercury. The PSA is being developed in response to several highly publicized, expensive cleanups of mercury spills in schools.

Universal Waste Rule: Mercury-Containing Equipment:

EPA has proposed to add mercury containing devices (e.g., thermometers and switches) to the Universal Waste Rule. For widely-generated hazardous wastes, this rule facilitates entry into the waste management system, encourages recycling and keeps wastes out of the municipal waste stream. EPA is expediting this rule and plans to finalize it in Fall 2006.

Mercury Lamps:

OSW is administering a 2 million dollar lamp recycling outreach program to promote the recycling of mercury-containing lamps. This effort is supported through 10 cooperative agreements with state and non-profit organizations that use these funds to create lamp recycling outreach programs targeting commercial and industrial users of mercury-containing lamps.

The goal of this program is to take a proactive role in increasing the national recycling rate (which is approximately 24%). To support this effort, OSW coordinated a Recyclers' Partnership Meeting (February 22, 2006) and plans to:

- Coordinate a Recyclers' Partnership Meeting (February 22, 2006)
- Revamp OSW's Mercury Lamp Recycling Web site;
- Finalize a Mercury Lamp Recycling Fact Sheet;
- Conduct direct outreach to specific target audiences (i.e., large chain stores, commercial property managers, and others); and
- Serve as a clearinghouse for outreach ideas and information.

Gray Bag Use in Dental Offices for Mercury:

OSW and the American Dental Association (ADA) are currently working together to promote proper management of dental amalgam wastes from dental offices. Dental amalgam is composed of 50 percent mercury. The ADA and EPA are seeking to increase recycling of the waste dental amalgam generated in more than 100,000 U.S. dental offices.

NPEP Partnerships to Reduce Mercury in Products:

Many current uses of mercury in products have cost effective, mercury-free alternatives. EPA invites companies that commit to reducing and/or phasing out mercury in their products to become partners in EPA's National Partnership for Environmental Priorities. As a component of these partnerships, EPA also promotes mercury-containing product take-back and recycling programs.

International and Artisanal Gold Mining:

OSW has provided technical assistance to the Global Environmental Fund (GEF) project on the management of mercury in artisanal gold mining for the last four years. The GEF/United Nations Industrial Development Organization (UNIDO) program involves the environmental monitoring of human health and the environment in six countries as well as the introduction of alternative mining methods to reduce or eliminate the use of mercury in gold mining. OSW is currently participating in an effort to provide additional financial support to this program.

International Mercury Reduction in Mining:

OSW has provided technical assistance to other Mercury Mining activities that are not GEF- related. One activity is the Amazon Basin Commission which is related to the reduction in the use of mercury in artisanal gold mining in the Amazon. Over the last two years we have provided technical support to the Commission regarding the scope of mercury use and evaluation of alternative gold recovery methods. These activities are a part of the United Nations Environmental Program (UNEP), a collaboration by various parts of the Agency to provide technical assistance to those countries not participating in GEF.

Mercury Video for Use in Schools:

The video features Clancy, the only mercury-detecting dog in the United States, and is designed primarily to:

- Increase awareness (among school children and their parents) of mercury and its dangers;
- Educate about the need for proper handling and disposal of mercury and mercury-containing products; and
- Keep our children, families, and communities safe.

Thermostat Recycling Corporation/Product Stewardship Institute Incentive Pilot:

Last summer, OSW partially funded (by grant to the Product Stewardship Institute – PSI) a thermostat recycling incentive pilot project. This pilot project involves a coordinated effort among industry, States (Indiana and Oregon), EPA, the Thermostat Recycling Corporation (TRC), and PSI, to offer a rebate to contractors who replace and recycle old mercury-containing thermostats with new Energy Star thermostats in Indiana and Oregon. The pilot project began in January 2006 and will determine whether or not a rebate enhances the recycling rate of mercury-containing thermostats. If the pilot is a success, TRC plans to expand the effort nationwide.